



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: JOHNSON, William D.
Title: FRONT MOUNTED ZERO TURN
RADIUS WALK BEHIND SPRAYER
Serial No.: 10/783,850
Filing Date: 02/20/2004
Art Unit: 3752
Examiner: BARNEY, Seth E.
Docket No.: P-6238-04-04
Last Action: January 26, 2006
Customer No.: 23983

Commissioner for Patents
Post Office Box 1450
Alexandria, VA 22313-1450
Dear Sir:

DECLARATION UNDER RULE 131

I, Peter D. Sachtjen, declare that:

1. I am an attorney of record in United States Patent Application Serial No. 10/783,850, and my registration number is 24,619.
2. Prior to October 31, 2002, at the request of the inventor of the above Patent Application, William D. Johnson, I prepared a draft patent application on a front mounted zero turn walk behind sprayer, a copy of which is attached as Exhibit A, and the referenced drawings in which are included in copies attached as Exhibit B.

All statements made herein of my own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both, under 18 USC 1001.

Dated: February 8, 2006

A handwritten signature in black ink, reading "Peter D. Sachtjen". The signature is written in a cursive style with a large, stylized "P" and "S".

Peter D. Sachtjen

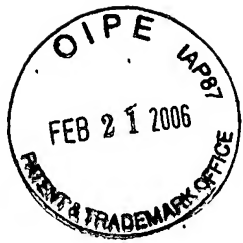


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• FRONT MOUNTED ZERO TURN WALK BEHIND SPRAYER

BACKGROUND OF THE INVENTION

The present invention relates to a motorized apparatus for spraying liquid additives, such as fertilizers, insecticides, pesticides and other liquids, to lawns and gardens in a rapid and accurate application pattern around obstacles such as trees and shrubbery.

Many motorized approaches have been taken for applying additives, such as nutrients and chemical modifiers, to soil for promoting growth and foliage control to lawns and turf. One of the difficulties has been accurately applying such additives at high deposition rates in areas requiring delineation of shrubbery and the like. In one prior approach as described in United States Patent No. 4,821,959 to Browning, a reservoir containing the additives is mounted above and behind the operator on a riding lawn mower. An auxiliary engine operated hydraulic pump is used to disperse the additives are dispensed through rearwardly disposed conduits and nozzles. With this rearwardly orientation of the applicaton, the operator cannot directly see the dispensing pattern and control application of the additives to the area traversed by the mower and must rely on the vehicle path as an approximation of the spraying pattern. Further, the front wheel steering for the mower makes coordination of the spraying pattern with turning movement of the mower difficult. Additionally, the relatively high mounting of the reservoir behind the operator raises the center of gravity of the spraying unit and can result in unstable driving conditions when the unit is operated in rough or hilly terrain.

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DESCRIPTION OF THE INVENTION

Referring to the attached drawings, there is shown a front mounted zero turn walk behind sprayer for applying liquid additives, such as chemicals and nutrients, to a lawn or turf area to be treated. Therein, Figure 1 is a side view of the sprayer, Figure 2 is a front view of the sprayer showing the spraying boom in the horizontal application position, Figure 3 is a side view of the sprayer showing the spraying boom in the stowed position, and Figure 4 is another side view of the sprayer.

As will become hereinafter apparent, the sprayer provides high maneuverability and high visibility for the purposes of edging and trimming around trees and obstructions during application. This results in an enhanced uniformity of application.

More particularly, the sprayer comprises a rear drive unit and a front spray application frame. The drive unit comprises a commercially available zero turn motorized assembly wherein the engine and associated transmission are effective through manual control to propel the sprayer through two laterally disposed, rear mounted drive wheels. The drive wheels are manually controlled by a pair of control levers mounted adjacent the top of the rearwardly inclined control handle. The levers are operative to selectively brake one or the other of the rear drive wheels such that the sprayer will pivot in an arc about a vertical axis passing through the axis of the drive axle and the braked wheel to provide the aforementioned maneuverability around trees and other obstructions.

The front frame comprises a generally rectangular frame formed of rectangular tubing. The frame is fixedly connected to the front portion or the drive unit by adapter brackets and fasteners. A plastic fluid reservoir is carried transversely on the top of the front frame and secured thereto by

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suitable fasteners, not shown. The front frame and the reservoir are situated low to the ground to provide a low center of gravity for the spraying apparatus increasing the stability thereof while traversing rough or hilly terrain. Conduits connected to the reservoir dispense liquids through a plurality of nozzles adjustably slidably disposed on a support boom. The outer ends of the support boom extend outwardly of the frame and the rear wheels. The outer ends of the support boom are pivotally attached to the side rails of the front frame for movement between the illustrated horizontal operating position and the vertical stowed position. A pair of front support wheels are attached to the front of the frame by fasteners. The support wheels are freely pivotable about a vertical for accommodating turning movement of the sprayer about the path prescribed by the rear wheel turning movement.. The wheels are located inwardly of the arc swung by the outer nozzles when the sprayer is operated in the zero turn radius mode such that the spraying pattern established by the outer nozzles will be outside the track of the support wheels..

A commercially available hydraulic pump is operatively connected to a drive shaft of the engine. The pump circulates the fluid through associated conduits, between the pump and the reservoir. A control valve mounted adjacent the upper portion of the operating handle is effective to route the fluid from the circulation path to the conduits leading to the boom mounted nozzles. The reservoir is provided with a pressure gage at the top thereof to denote operating conditions. A pressure regulator is provided for maintaining the desired operating pressure.

As previously mentioned, the front wheels are located so as to be radially interior of the arc swung by the outermost nozzle when the drive unit is operating in a zero turn steering mode wherein one of the drive

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wheels is braked or stopped. It will thus be appreciated that the operator can be visibly assured that the application of liquids is in the desired pattern as the sprayer is maneuvered around trees and other obstructions.

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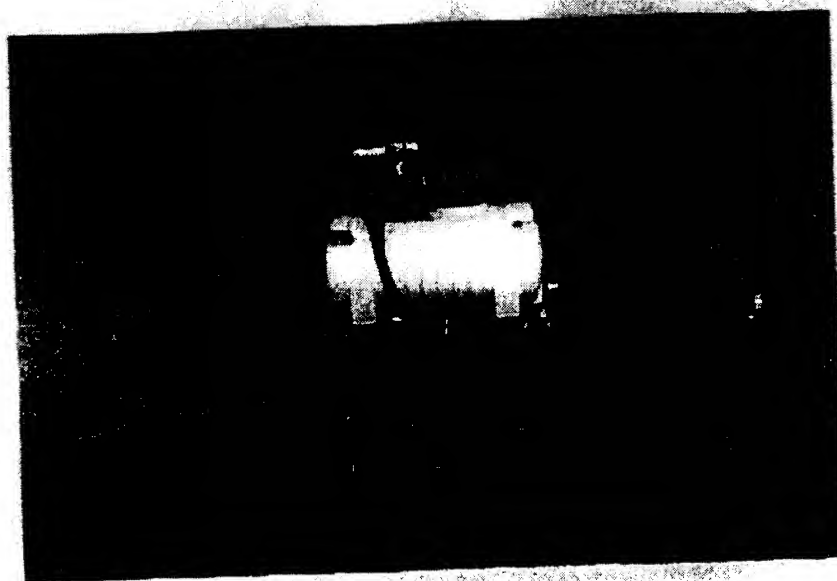
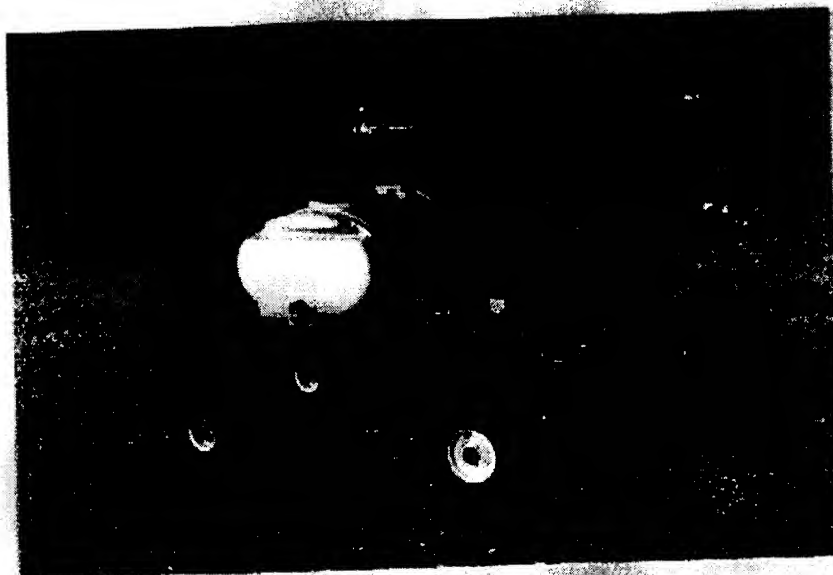
CLAIMS.

1. A walk behind spraying apparatus for applying liquids comprising: a drive unit including an engine operatively connected to a pair of laterally spaced drive wheels for providing forward and rearward movement to the sprayer; operator controlled means operatively associated with said engine and said drive wheels for selectively braking one of said drive wheels during said forward and rearward movement to thereby cause the sprayer to turn about the drive wheel being braked; frame means connected to said drive unit and projecting forwardly thereof; a fluid reservoir carried by said frame means; pump means carried by said drive unit and operatively connected to said engine for circulating fluid under pressure during operation thereof; a pair of support wheels carried by said frame means and pivotable about a vertical axis; a boom member carried by said frame means and laterally disposed thereon; a plurality of liquid dispensing nozzles adjustably supported on said boom member, the outermost of said nozzles being located radially outwardly of the arc being traversed by said support wheels when said spraying unit is pivoted during said movement about a braked drive wheel; conduit means fluidly connecting said pump means, said reservoir and said nozzles; and control means operatively associated with said conduit means for dispensing fluid under pressure through said nozzles.



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